

CLAIMS:

1. A lateral thin-film Silicon-On-Insulator (SOI) device comprising a semiconductor substrate, a buried insulating layer on said substrate, and a lateral MOS transistor device in an SOI layer on said buried insulating layer and having a source region of a first type conductivity formed in a body region of a second type conductivity, a lateral drift region of a second type conductivity adjacent said body region, a drain region of a first conductivity and laterally spaced apart from said body region by said lateral drift region, a gate electrode insulated from said body region and drift region by an insulation region, and a field plate connected either to said source region or said gate electrode and extending substantially over said lateral drift region, wherein said field plate comprises a first layer of plural metallic regions which are isolated laterally from one another by spaces so as to form a linear lateral electric field distribution.
2. A lateral thin-film Silicon-On-Insulator (SOI) of claim 1 wherein said isolated metallic regions are isolated from one another by a dielectric layer.
3. A lateral thin-film Silicon-On-Insulator (SOI) of claim 2 wherein said field plate further comprises another layer of plural metallic regions located above said spaces, laterally isolated from one another, and isolated from said metallic regions of said first layer by said dielectric layer.
4. A lateral thin-film Silicon-On-Insulator (SOI) of claim 3 wherein said dielectric layer is a silicon-rich nitride layer.
5. A lateral thin-film Silicon-On-Insulator (SOI) of claim 4 further comprises another dielectric layer provided between said field plate and said MOS transistor device.

6. A lateral thin-film Silicon-On-Insulator (SOI) of claim 1 wherein said lateral drift region is provided with a linearly-graded charge profile.
7. A lateral thin-film Silicon-On-Insulator (SOI) of claim 6 wherein said linear lateral electric field distribution follows an electric field in said drift region.
8. A lateral thin-film Silicon-On-Insulator (SOI) of claim 7 wherein said first type conductivity is p-type conductivity, and said second type conductivity is n-type conductivity.
9. A lateral thin-film Silicon-On-Insulator (SOI) of claim 3 wherein said first type conductivity is p-type conductivity, and said second type conductivity is n-type conductivity.
10. A lateral thin-film Silicon-On-Insulator (SOI) of claim 1 wherein said first type conductivity is n-type conductivity, and said second type conductivity is p-type conductivity.